ANSWERS: Crystal ball questions on **Solubility product**

$BaCrO_4$	**$Cu(IO_3)_2$**	**SrF_2**	**PbI_2**
$K_s(BaCrO_4) = 1.2 \times 10^{-10}$	$K_s = 1.3 \times 10^{-12}$	$K_s = 4.3 \times 10^{-10}$	$K_s = 8.5 \times 10^{-9}$
$BaCrO_4 \rightleftarrows Ba^{2+} + CrO_4^{2-}$ $Ks = [Ba^{2+}]\,[CrO_4^{2-}]$ $1.2 \times 10^{-10} = x \,.\, x$ $1.2 \times 10^{-10} = x^2$ $\sqrt{}\ 1.2 \times 10^{-10} = x$ **ANS:** 1.1×10^{-5} mol L^{-1}	$Cu(IO_3)_2 \rightleftarrows Cu^{2+} + 2IO_3^-$ $Ks = [Cu^{2+}]\,[IO_3^-]^2$ $1.3 \times 10^{-12} = x \,.\, 2x^2$ $1.3 \times 10^{-12} = 4x^3$ $\sqrt[3]{\frac{1.3 \times 10^{-12}}{4}} = x$ **ANS:** 6.9×10^{-5} mol L^{-1}	$SrF_2 \rightleftarrows Sr^{2+} + 2F^-$ $Ks = [Sr^{2+}]\,[F^-]^2$ $4.3 \times 10^{-10} = x \,.\, 2x^2$ $4.3 \times 10^{-10} = 4x^3$ $\sqrt[3]{\frac{4.3 \times 10^{-10}}{4}} = x$ **ANS:** 4.8×10^{-4} mol L^{-1}	$K_s(PbI_2) = 8.5 \times 10^{-9}$ $PbI_2 \rightleftarrows Pb^{2+} + 2I^-$ $Ks = [Pb^{2+}]\,[I^-]^2$ $8.5 \times 10^{-9} = x \,.\, 2x^2$ $8.5 \times 10^{-9} = 4x^3$ $\sqrt[3]{\frac{8.5 \times 10^{-9}}{4}} = x$ **ANS:** 1.2×10^{-3} mol L^{-1}

conc of Ag^+ ions is	**conc of S^{2-} ions is**	**conc of Cu^{2+} ions is**	**conc of OH^- ions is**
$AgCl \rightleftarrows Ag^+ + Cl^-$ $Ks = [Ag^+]\,[Cl^-]$ $1.8 \times 10^{-10} = x \ .\ x$ $1.8 \times 10^{-19} = x^2$ $\sqrt{}\ 1.8 \times 10^{-19} = x$ **ANS:** 4.2×10^{-10} mol L^{-1}	$CuS \rightleftarrows Cu^{2+} + S^{2-}$ $Ks = [Cu^{2+}]\,[S^{2-}]$ $6.0 \times 10^{-37} = x \ .\ x$ $6.0 \times 10^{-37} = x^2$ $\sqrt{}\ 6.0 \times 10^{-37} = x$ **ANS:** 7.7×10^{-19} mol L^{-1}	$Cu(IO_3)_2 \rightleftarrows Cu^{2+} + 2IO_3^-$ $Ks = [Cu^{2+}]\,[IO_3^-]^2$ $6.9 \times 10^{-8} = x \,.\, 2x^2$ $6.9 \times 10^{-8} = 4x^3$ $\sqrt[3]{\frac{6.9 \times 10^{-8}}{4}} = x$ **ANS:** 2.6×10^{-3} mol L^{-1}	$Fe(OH)_2 \rightleftarrows Fe^{2+} + 2OH^-$ $Ks = [Fe^{2+}]\,[OH^-]^2$ $4.9 \times 10^{-17} = x \,.\, 2x^2$ $4.9 \times 10^{-17} = 4x^3$ $\sqrt[3]{\frac{4.9 \times 10^{-17}}{4}} = x$ $= 2.3 \times 10^{-6}$ mol L^{-1} There are 2 x number of OH^- ions, so the answer is 4.6×10^{-6} mol L^{-1}